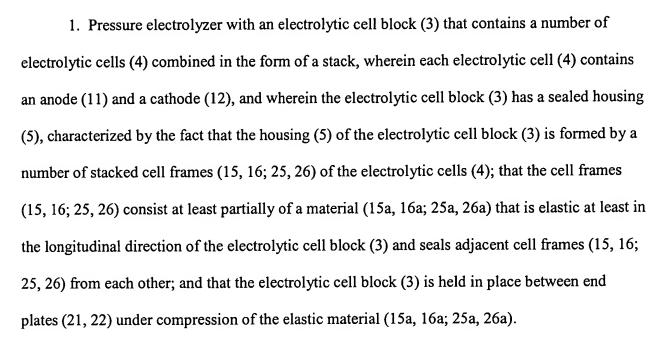






CLAIMS



- 2. Pressure electrolyzer in accordance with Claim 1, characterized by the fact that the cell frames (15, 16; 25, 26) have a rigid element (15b, 16b; 25b, 26b), which runs in the circumferential direction of the frame for mechanical stabilization of the cell frames (15, 16; 25, 26) and is connected with the elastic material (15a, 16a; 25a, 26a).
- 3. Pressure electrolyzer in accordance with Claim 2, characterized by the fact that the rigid element (15b, 16b) forms a shell-like frame structure, which partially encloses the elastic material (15a, 16a) and from which the elastic material (15a, 16a) partially protrudes to form a compressible region (15c, 16c) in the longitudinal direction of the electrolytic cell block (3).
- 4. Pressure electrolyzer in accordance with Claim 2, characterized by the fact that the rigid element (25b, 26b) forms a frame-like insert that is wholly or partially embedded in the elastic material (25a, 26a).
- 5. Pressure electrolyzer in accordance with Claim 3 or Claim 4, characterized by the fact that adjacent cell frames (15, 16; 25, 26) each have projecting parts (15d, 16d) and recesses (15e,

16e) that fit into each other for locking the adjacent cell frames (15, 16; 25, 26) in place and/or for sealing the adjacent cell frames (15, 16; 25, 26).

- 6. Pressure electrolyzer in accordance with any of Claims 1 to 5, characterized by the fact that each anode (11) has its own anode cell frame (15; 25), and each cathode (12) has its own cathode cell frame (16; 26).
- 7. Pressure electrolyzer in accordance with any of Claims 1 to 6, characterized by the fact that the elastic material (15a, 16a; 25a, 26a) consists of an elastomer or a soft elastic thermoplastic.
- 8. Pressure electrolyzer in accordance with any of Claims 2 to 7, characterized by the fact that the rigid element (15b, 16b; 25b, 26b) consists of a dimensionally stable material, especially a metal or a plastic.
- 9. Pressure electrolyzer in accordance with any of Claims 3 to 8, characterized by the fact that the rigid element (15b, 16b) that forms the shell-like frame structure consists of an electrically insulating material, especially plastic.
- 10. Pressure electrolyzer in accordance with any of Claims 1 to 9, characterized by the fact that the end plates (21, 22) form the power supply to the ends of the electrolytic cell block (3).
- 11. Cell frame for a pressure electrolyzer, which comprises an electrolytic cell block (3) that contains a number of electrolytic cells (4) combined in the form of a stack, wherein each electrolytic cell (4) contains an anode (11) and a cathode (12), and wherein the electrolytic cell block (3) has a sealed housing (5), characterized by the fact that the housing (5) of the electrolytic cell block (3) is formed by a number of stacked cell frames (15, 16; 25, 26) and that the cell frame (15, 16; 25, 26) consists at least partially of a material (15a, 16a; 25a, 26a) that is

elastic at least in the longitudinal direction of the electrolytic cell block (3) and seals adjacent cell frames (15, 16; 25, 26) from each other.

- 12. Cell frame in accordance with Claim 11, characterized by the fact that the cell frame (15, 16) has a rigid element (15b, 16b; 25b, 26b), which runs in the circumferential direction of the frame for mechanical stabilization of the cell frame (15, 16; 25, 26) and is connected with the elastic material (15a, 16a; 25a, 26a).
- 13. Cell frame in accordance with Claim 12, characterized by the fact that the rigid element (15b, 16b) forms a shell-like frame structure, which partially encloses the elastic material (15a, 16a) and from which the elastic material (15a, 16a) partially protrudes to form a compressible region (15c, 16c) in the longitudinal direction of the electrolytic cell block (3).
- 14. Cell frame in accordance with Claim 12, characterized by the fact that the rigid element (25b, 26b) forms a frame-like insert that is wholly or partially embedded in the elastic material (25a, 26a).
- 15. Cell frame in accordance with Claim 13 or Claim 14, characterized by the fact that each cell frame (15, 16; 25, 26) has projecting parts (15d, 16d) and recesses (15e, 16e) that fit into each other for locking adjacent cell frames (15, 16; 25, 26) in place and/or for sealing adjacent cell frames (15, 16; 25, 26).
- 16. Cell frame in accordance with any of Claims 11 to 15, characterized by the fact that each anode (11) has its own anode cell frame (15; 25), and each cathode (12) has its own cathode cell frame (16; 26).
- 17. Cell frame in accordance with any of Claims 11 to 16, characterized by the fact that the elastic material (15a, 16a; 25a, 26a) consists of an elastomer or a soft elastic thermoplastic.
 - 18. Cell frame in accordance with any of Claims 12 to 17, characterized by the fact that

the rigid element (15b, 16b; 25b, 26b) consists of a dimensionally stable material, especially a metal or a plastic.

19. Cell frame in accordance with any of Claims 13 to 18, characterized by the fact that the rigid element (15b, 16b) that forms the shell-like frame structure consists of an electrically insulating material, especially plastic.